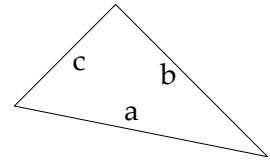


## Programming Heron's Formula into the TI-83/84

Heron's Formula allows us to find the area of a non-right triangle when we know the length of the three sides.

① First define  $s = \frac{a + b + c}{2}$

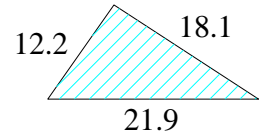
② Then compute the area,  $A = \sqrt{s(s - a)(s - b)(s - c)}$



**Example 7** Find the area of this triangle

①  $a = 12.2, b = 18.1, c = 21.9. s = \frac{12.2 + 18.1 + 21.9}{2} = \frac{52.2}{2} = 26.1$

②  $A = \sqrt{26.1(26.1 - 12.2)(26.1 - 18.1)(26.1 - 21.9)} = \sqrt{12189.744} \approx \underline{\underline{110}}$



↵ = **ENTER**

### COMMAND

### COMMENTS

Press <b>PRGM</b>	Brings up the Program Menu: EXEC EDIT NEW
Select NEW ↵	Use EDIT to edit an existing program
Name = HERON ↵	Names the program HERON. Other names will also suffice.
:ClrHome ↵	<b>PRGM</b> → I/O → 8. Clears the home screen.
:Prompt A,B,C ↵	<b>PRGM</b> → I/O → 2. Will prompt the user for A, B and C
:(A+B+C)/2 →S ↵	Calculates S
:√(S(S-A)(S-B)(S-C))→Q ↵	Calculates the area
:Disp "AREA",Q▶Frac ↵	<b>PRGM</b> → I/O → 3. Displays the area as a fraction if possible.

Now run the program on the above example. Use PGRM → EXEC → Select Program ↵. Note: Use MODE to preset to FLOAT accuracy.